P. ENT COOPERATION TREA

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 22 June 2000 (22.06.00)	
International application No. PCT/IL99/00583	**Applicant's or agent's file reference** 34893
International filing date (day/month/year) 02 November 1999 (02.11.99)	**Priority date** (day/month/year) 02 November 1998 (02.11.98)
Applicant EIDELMAN, Doron et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

25 May 2000 (25.05.00)

[] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

F. Baechler

Telephone No.: (41-22) 338.83.38

INTERNATIONAL SEARCH REPORT

Inter[redacted]al Application No
PCT/IL 99/00583

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N21/88

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 344 365 A (SCOTT) 6 September 1994 (1994-09-06) column 1, line 12 - line 25 column 8, line 47 - line 55 column 8, last line -column 9, line 13 column 13, last paragraph -column 14, line 4	1,3-5,7, 13, 75-78, 80,86
X	figure 6	2,146

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 February 2000	05.06.00

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	THOMAS, M

1

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 672 933 A (ORBOTECH) 20 September 1995 (1995-09-20) abstract page 4, line 54 -page 5, line 6 page 6, line 12 - line 16 & US 5 771 068 A cited in the application	1,3-5,7, 13, 75-78, 80,86
A	---	84
A	US 5 058 491 A (WIEMER) 22 October 1991 (1991-10-22) column 1, paragraph 4 column 2, line 46 - line 54 column 4, line 48 - line 64 figure 1	1,2,75, 146
A	---	1,2,75, 146
A	WO 94 17336 A (INTELLIGENT ENCLOSURES) 4 August 1994 (1994-08-04) abstract page 6, line 9 - line 11 page 7, line 27 -page 8, line 11 page 14, line 4 - line 11 page 14, line 21 -page 15, line 4	1,2,75, 146
A	---	1,2,75, 146
Y	EP 0 196 333 A (TAKASAGO THERMAL ENGINEERING) 8 October 1986 (1986-10-08) page 1, paragraph 2 -page 2, line 1 page 5, line 4 - line 16	1,9-12, 75,82, 83,85
X	--- US 5 562 383 A (IWAI) 8 October 1996 (1996-10-08) column 1, line 11 - line 13 column 2, line 9 - line 23 column 12, line 54 -column 13, line 14 column 14, line 37 - line 40	2,146
Y	--- WO 98 20327 A (KLA-TENCOR) 14 May 1998 (1998-05-14) page 1, line 15 - line 18 page 4, line 1 - line 6 page 8, line 5 - line 19 page 18, line 25 - line 29	1,9-12, 75,82, 83,85
A	--- US 5 058 982 A (ORBOT) 22 October 1991 (1991-10-22) column 4, paragraph 3; figure 1	9-12,82, 83,85
	--- -/--	

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 715 052 A (FUJINO) 3 February 1998 (1998-02-03) column 1, line 10 - line 15 column 11, line 2 - line 16 column 11, line 32 - line 41 column 12, line 49 -column 13, line 6 column 13, line 58 - line 63 figures 1,4 -----	1,6,9, 75,79,83

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL 99/00583

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

B x II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-15,75-88,146,179

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/IL 99/00583

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-15,75-88,146,179

 Two levels of environmental control.

2. Claims: 16-73,89-113,115-131,147-178

 Non-scanning sensor and two illumination configurations.

3. Claims: 74,114

 Remotely controlled positioning and illumination of article in clean room.

4. Claims: 132-145

 Sensor positioned with respect to specific diffraction orders.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte[illegible]al Application No
PCT/IL 99/00583

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5344365 A	06-09-1994	AU 5677194 A	03-04-1995
		CN 1106887 A	16-08-1995
		EP 0719450 A	03-07-1996
		IL 107865 A	05-12-1996
		JP 9502792 T	18-03-1997
		SG 52495 A	28-09-1998
		WO 9508184 A	23-03-1995
EP 0672933 A	20-09-1995	JP 8068976 A	12-03-1996
		US 5771068 A	23-06-1998
US 5058491 A	22-10-1991	NONE	
WO 9417336 A	04-08-1994	US 5401212 A	28-03-1995
		CN 1119040 A	20-03-1996
		EP 0680584 A	08-11-1995
		JP 8510826 T	12-11-1996
		US 5431599 A	11-07-1995
EP 0196333 A	08-10-1986	JP 1769230 C	30-06-1993
		JP 4054140 B	28-08-1992
		JP 61072947 A	15-04-1986
		DE 3570514 D	29-06-1989
		GB 2176278 A,B	17-12-1986
		HK 21592 A	03-04-1992
		IN 166273 A	07-04-1990
		WO 8601879 A	27-03-1986
		KR 9309610 B	07-10-1993
		PH 22626 A	28-10-1988
		SG 22089 G	14-07-1989
		US 4693175 A	15-09-1987
US 5562383 A	08-10-1996	JP 6302679 A	28-10-1994
		JP 7161797 A	23-06-1995
		US 5829939 A	03-11-1998
		GB 2284706 A,B	14-06-1995
		SG 47806 A	17-04-1998
WO 9820327 A	14-05-1998	US 5917588 A	29-06-1999
		AU 5103798 A	29-05-1998
		EP 0935747 A	18-08-1999
US 5058982 A	22-10-1991	NONE	
US 5715052 A	03-02-1998	JP 7325041 A	12-12-1995
		EP 0685731 A	06-12-1995
		KR 187612 B	01-06-1999
		KR 191089 B	15-06-1999

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	**ES**	Spain	**LS**	Lesotho	**SI**	Slovenia
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CM	Cameroon			**PL**	Poland		
CN	China	**KR**	Republic of Korea	**PT**	Portugal		
CU	Cuba	**KZ**	Kazakstan	**RO**	Romania		
CZ	Czech Republic	**LC**	Saint Lucia	**RU**	Russian Federation		
DE	Germany	**LI**	Liechtenstein	**SD**	Sudan		
DK	Denmark	**LK**	Sri Lanka	**SE**	Sweden		
EE	Estonia	**LR**	Liberia	**SG**	Singapore		

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Articl 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
34893		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/IL 99/00583	02/11/1999	02/11/1998
Applicant		
ORBOTECH LTD. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readble form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ None of the figures.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International Application No
PC[redacted] 99/00583

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N21/88

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 344 365 A (SCOTT) 6 September 1994 (1994-09-06) column 1, line 12 - line 25 column 8, line 47 - line 55 column 8, last line -column 9, line 13 column 13, last paragraph -column 14, line 4	1,3-5,7, 13, 75-78, 80,86
X	figure 6	2,146

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 February 2000	05. 06. 00

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	THOMAS, M

1

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 672 933 A (ORBOTECH) 20 September 1995 (1995-09-20) abstract page 4, line 54 -page 5, line 6	1,3-5,7, 13, 75-78, 80,86
A	page 6, line 12 - line 16 & US 5 771 068 A cited in the application	84

A	US 5 058 491 A (WIEMER) 22 October 1991 (1991-10-22) column 1, paragraph 4 column 2, line 46 - line 54 column 4, line 48 - line 64 figure 1	1,2,75, 146

A	WO 94 17336 A (INTELLIGENT ENCLOSURES) 4 August 1994 (1994-08-04) abstract page 6, line 9 - line 11 page 7, line 27 -page 8, line 11 page 14, line 4 - line 11 page 14, line 21 -page 15, line 4	1,2,75, 146

A	EP 0 196 333 A (TAKASAGO THERMAL ENGINEERING) 8 October 1986 (1986-10-08) page 1, paragraph 2 -page 2, line 1 page 5, line 4 - line 16	1,2,75, 146

Y	US 5 562 383 A (IWAI) 8 October 1996 (1996-10-08) column 1, line 11 - line 13 column 2, line 9 - line 23 column 12, line 54 -column 13, line 14	1,9-12, 75,82, 83,85
X	column 14, line 37 - line 40	2,146

Y	WO 98 20327 A (KLA-TENCOR) 14 May 1998 (1998-05-14) page 1, line 15 - line 18 page 4, line 1 - line 6 page 8, line 5 - line 19 page 18, line 25 - line 29	1,9-12, 75,82, 83,85

A	US 5 058 982 A (ORBOT) 22 October 1991 (1991-10-22) column 4, paragraph 3; figure 1	9-12,82, 83,85

	-/--	

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INTERNATIONAL SEARCH REPORT

International Application No
PC[redacted] 99/00583

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 715 052 A (FUJINO) 3 February 1998 (1998-02-03) column 1, line 10 - line 15 column 11, line 2 - line 16 column 11, line 32 - line 41 column 12, line 49 -column 13, line 6 column 13, line 58 - line 63 figures 1,4 -----	1,6,9, 75,79,83

1

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL 99/00583

Box I Observations wher certain claims were found un earchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-15,75-88,146,179

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-15,75-88,146,179

 Two levels of environmental control.

2. Claims: 16-73,89-113,115-131,147-178

 Non-scanning sensor and two illumination configurations.

3. Claims: 74,114

 Remotely controlled positioning and illumination of article in clean room.

4. Claims: 132-145

 Sensor positioned with respect to specific diffraction orders.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PC[redacted] 99/00583

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5344365	A	06-09-1994	AU	5677194 A	03-04-1995
			CN	1106887 A	16-08-1995
			EP	0719450 A	03-07-1996
			IL	107865 A	05-12-1996
			JP	9502792 T	18-03-1997
			SG	52495 A	28-09-1998
			WO	9508184 A	23-03-1995
EP 0672933	A	20-09-1995	JP	8068976 A	12-03-1996
			US	5771068 A	23-06-1998
US 5058491	A	22-10-1991	NONE		
WO 9417336	A	04-08-1994	US	5401212 A	28-03-1995
			CN	1119040 A	20-03-1996
			EP	0680584 A	08-11-1995
			JP	8510826 T	12-11-1996
			US	5431599 A	11-07-1995
EP 0196333	A	08-10-1986	JP	1769230 C	30-06-1993
			JP	4054140 B	28-08-1992
			JP	61072947 A	15-04-1986
			DE	3570514 D	29-06-1989
			GB	2176278 A,B	17-12-1986
			HK	21592 A	03-04-1992
			IN	166273 A	07-04-1990
			WO	8601879 A	27-03-1986
			KR	9309610 B	07-10-1993
			PH	22626 A	28-10-1988
			SG	22089 G	14-07-1989
			US	4693175 A	15-09-1987
US 5562383	A	08-10-1996	JP	6302679 A	28-10-1994
			JP	7161797 A	23-06-1995
			US	5829939 A	03-11-1998
			GB	2284706 A,B	14-06-1995
			SG	47806 A	17-04-1998
WO 9820327	A	14-05-1998	US	5917588 A	29-06-1999
			AU	5103798 A	29-05-1998
			EP	0935747 A	18-08-1999
US 5058982	A	22-10-1991	NONE		
US 5715052	A	03-02-1998	JP	7325041 A	12-12-1995
			EP	0685731 A	06-12-1995
			KR	187612 B	01-06-1999
			KR	191089 B	15-06-1999

PATENT COOPERATION TREATY

U 013399-2

12 FEB 2001

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

De Bruijn, Leendert C. et al.
NEDERLANDSCH OCTROOIBUREAU
Scheveningseweg 82
(P.O. Box 29720)
NL-2502 LS The Hague
PAYS-BAS

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	09.02.2001
Applicant's or agent's file reference BO43696	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IL99/00583	02/11/1999	02/11/1998

Applicant
ORBOTECH LTD. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Conner, M Tel.+49 89 2399-2241

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
BO43696		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IL99/00583	02/11/1999	02/11/1998
International Patent Classification (IPC) or national classification and IPC G01N21/88		
Applicant ORBOTECH LTD. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 11 sheets, including this cover sheet.

 ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

 - I ☒ Basis of the report
 - II ☐ Priority
 - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☒ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
 - VI ☐ Certain documents cited
 - VII ☒ Certain defects in the international application
 - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
25/05/2000	09.02.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Filipas, A Telephone No. +49 89 2399 2255

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL99/00583

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:
Description, pages:

1-45 as originally filed

Claims, No.:

1-179 as originally filed

Drawings, sheets:

1/23-23/23 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 16-74,89-145,147-178.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 16-74,89-145,147-178.

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

☐ restricted the claims.

☐ paid additional fees.

☐ paid additional fees under protest.

☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

☐ complied with.

☒ not complied with for the following reasons:
see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

☐ all parts.

☒ the parts relating to claims Nos. 1-15,75-88,146,179.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1,3-15,75-88,179
	No:	Claims	2,146
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1,3-15,75-88,179
Industrial applicability (IA)	Yes:	Claims	1-15,75-88,146,179
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item IV

Lack of unity of invention

As already specified in the International Search Report, the application is not unitary and relates to four separate groups of inventions which constitute the subject-matter of the following groups of claims:

i) claims 1-15, 75-88, 146 and 179, for systems and methods for manufacturing flat panel displays by using manufacturing devices located in a first controlled environment and inspection devices located within a second controlled environment included in said manufacturing devices;

ii) claims 16-73, 89-113,115-131 and 147-178, for systems and methods for inspecting objects, and methods for coating the surface of an article, by using two illumination configurations and non-scanning sensors for optical inspection;

iii) claims 74 and 114, for an apparatus and a method for inspecting an article in a clean room, by using at least one non-scanning sensor and a controller for remotely controlling a positioning stage and array of illuminators;

iv) claims 132-145, for an apparatus and a method for automatic optical inspection of generally flat articles, by using a light beam generator and a sensor positioned with respect to specific orders of diffracted light reflected from said inspected article.

Said groups of claims are not so linked as to form a single general inventive concept (in the sense of Rule 13.2 PCT), and the requirement of unity of invention of Rule 13.1 PCT is therefore not met.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents, previously cited in the International Search Report:

D1: US-A-5 344 365 (SCOTT) 6 September 1994
D2: US-A-5 715 052 (FUJINO) 3 February 1998
D3: EP-A-0 672 933 (ORBOTECH) 20 September 1995
& US-A-5 771 068 *cited in the application*
D4: WO 98 20327 A (KLA-TENCOR) 14 May 1998

2. Document D1, considered as the closest prior art with respect to the subject-matter of claim 1 of the present application, discloses (cf. column 1, lines 12-22, column 3, line 24 - column 4, line 10, column 8, line 48 - column 9, line 13, column 13, line 67 - column 14, line 11 and figure 6):

a system for manufacture of flat panel displays, comprising a plurality of manufacturing devices located in a first controlled environment, said plurality of manufacturing devices each including an enclosure defining a second controlled environment different from said first controlled environment.

The subject-matter of claim 1 differs from the system disclosed in document D1 in that there is provided, within said enclosures defining said second controlled environments, a plurality of optical inspection devices for inspecting the flat panel display substrates at various stages of the production thereof.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing a system of the general type disclosed in document D1 which would enable an increased yield of reliable flat panel displays.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.
Document D2 discloses (cf. column 6, lines 25-64, column 7, lines 52-59, column 11, line 2 - column 13, line 64 and figures 1, 4) a system for manufacturing flat panel displays (liquid crystal displays), wherein the devices performing different manufacturing steps are accompanied by optical inspection devices for inspecting the flat panel display substrates at various stages of the production thereof. The system of document D2 is specifically characterized (see in particular column 7, lines 52-59)

as improving the yield and reliability of the flat panel displays produced thereby, so that the skilled person would regard it as a normal option to include the teaching of document D2 in the system described in document D1 in order to solve the problem posed. With respect to the feature of locating the optical inspection devices in the enclosures corresponding to the manufacturing devices, this merely represents an obvious constructional measure which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen.

3. The subject-matter of the independent claim 2 is anticipated by document D1, which discloses (cf. column 1, lines 12-22, column 3, line 24 - column 4, line 10, column 8, line 48 - column 9, line 13, column 13, line 67 - column 14, line 11 and figure 6):

a system for manufacture of flat panel displays comprising a first controlled environment which is an airborne particle controlled environment having a first level of controlled airborne particulate contamination, and a second controlled environment which is an airborne particle controlled environment having a second level of controlled airborne particulate contamination that is less than the first level of controlled airborne particulate contamination.

Hence, claim 2 (insofar as it can be understood in view of the clarity objections under section VIII below) appears not to be novel (Article 33(2) PCT) in view of the disclosure of document D1.

4. Although the respective subject-matter of claims 3-15 is not disclosed as such in the available prior art, and is therefore novel (Article 33(2) PCT), dependent claims 3-15 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being that said dependent claims seem to relate to mere design modifications, consequential features of the basic systems of claims 1 and 2, respectively, or conventional features (see e.g. documents D1-D4), and thus do not add anything inventive to the independent apparatus claims 1 and 2.

5. In view of the fact that the features of the independent method claims 75 and 146 correspond to those of the independent apparatus claims 1 and 2, the reasoning presented under paragraphs 2 and 3 above is also applicable to said claims 75 and

146. The subject-matter of claim 75 is therefore novel (Article 33(2) PCT), but it is not considered to involve an inventive step (Article 33(3) PCT), and the subject-matter of claim 146 is anticipated by document D1.

6. Claims 76-88 and 179 are dependent on claim 75 and as such also meet the requirements of the PCT with respect to novelty.

However, the dependent method claims 76-88 (strictly corresponding to the apparatus claims 3-15) and 179 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being that said dependent claims seem to relate to mere design modifications, consequential features of the basic method of claim 75 or conventional features (see e.g. documents D1-D4), and thus do not add anything inventive to the independent method claim 75.

7. Claims 1-15, 75-88, 146 and 179 appear to satisfy the criterion of industrial applicability (Article 33(4) PCT), since the claimed invention can be used for manufacturing flat panel displays.

Re Item VII

Certain defects in the international application

1. The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, with those features known in combination from the prior art (see document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

3. The syntax of the phrases used on page 2, line 31 - page 3, line 5 of the description leaves the reader in doubt as to the meaning of the technical features to which said phrases refer, thereby rendering unclear the disclosure of the invention (Rule 5.1(a)(iii) PCT).

4. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

Certain observations on the international application

1. The various definitions of the invention given in the independent apparatus claims 1 and 2, and in the independent method claims 75 and 146 are such that the claims as a whole are not clear and concise, contrary to the provisions of Article 6 PCT and therefore make it difficult to determine the matter for which protection is sought, placing an undue burden on others seeking to establish the extent of the protection.

2. The respective wordings of claims 2 ("A system...comprising wherein...") and 8 ("...one non-scanning sensor comprises a plurality of non-scanning sensors...") are unclear and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT).

3. Claim 2 is rendered unclear (Article 6 PCT) by the references to "**the** first controlled environment" and to "the second controlled environment", since said independent claim 2 does not comprise any previous mention of such first and second controlled environments.

 Claim 179 is rendered unclear by the reference to "**said** optical array", since there is no mention of such an optical array in claims 75-79 on which claim 179 is dependent.

4. The method implied by the combination of claims 80 and 81, comprising the use of at least one sensor viewing the entire surface of the substrate (according to claim 80) **and** of a plurality of sensors viewing each a portion of the substrate (according to claim 81), is not referred to in the description. Claim 81 is therefore not supported by the description as required by Article 6 PCT.

 It should be noted that the embodiment of the invention described on page 29, lines

24-26 and on page 37, lines 19-26 concerns the use of an array of sensors viewing each a portion of the substrate as an alternative to the use of one sensor viewing the entire surface of the substrate.

5. The combinations of claims 8,9, 11 and 81,82, 84, respectively, are rendered unclear (Article 6 PCT) since it is not clear which one, from the mentioned plurality of non-scanning sensors, is the non-scanning sensor referred to.

6. The following feature in the apparatus claim 11 relates to a method of using the apparatus rather than clearly defining the apparatus in terms of its technical features:

"...in which the non-scanning sensor acquires..."

The intended limitations are therefore not clear from this claim, contrary to the requirements of Article 6 PCT.

7. The term "substantially" used in claims 7, 8, 10, 80, 81 and 83 has no well-recognised meaning and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT, PCT Guidelines III-4.5a).

8. The respective subject-matter of claims 13 and 86 is defined by means of a negative feature, namely that the image analyser is operative, and the analysis step is performed, **without** comparison to an external reference. However, such a "disclaimer" may only be used when the claim's subject-matter cannot be defined more clearly and concisely by means of positive features (PCT Guidelines, III-4.12).

9. The claims 1-15, 75-88, 146, 179 are rendered unclear (Article 6 PCT) by the inconsistency between their respective subject-matter, i.e. a system and a method for **manufacture** of flat panel displays, and the disclosure of the invention (summary of invention) on page 4, lines 2-4, 7-12, page 5, lines 4-11 and page 6, lines 24-27, which refers to systems and methods for **inspection** of flat panel displays.

TENT COOPERATION TRE[redacted]Y

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
BO43696		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IL99/00583	02/11/1999	02/11/1998
International Patent Classification (IPC) or national classification and IPC G01N21/88		
Applicant ORBOTECH LTD. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 11 sheets, including this cover sheet.

 ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

 - I ☒ Basis of the report
 - II ☐ Priority
 - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☒ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
 - VI ☐ Certain documents cited
 - VII ☒ Certain defects in the international application
 - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
25/05/2000	09.02.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Filipas, A Telephone No. +49 89 2399 2255

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL99/00583

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).)*:
Description, pages:

1-45 as originally filed

Claims, No.:

1-179 as originally filed

Drawings, sheets:

1/23-23/23 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

 (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

 ☐ the entire international application.

 ☒ claims Nos. 16-74,89-145,147-178.

because:

 ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

 ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

 ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

 ☒ no international search report has been established for the said claims Nos. 16-74,89-145,147-178.

2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

 ☐ the written form has not been furnished or does not comply with the standard.

 ☐ the computer readable form has not been furnished or does not comply with the standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

 ☐ restricted the claims.

☐ paid additional fees.

☐ paid additional fees under protest.

☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

☐ complied with.

☒ not complied with for the following reasons:
see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

☐ all parts.

☒ the parts relating to claims Nos. 1-15,75-88,146,179.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1,3-15,75-88,179
	No:	Claims	2,146
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1,3-15,75-88,179
Industrial applicability (IA)	Yes:	Claims	1-15,75-88,146,179
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the int rnational application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

s separate sheet

Re Item IV

Lack of unity of invention

As already specified in the International Search Report, the application is not unitary and relates to four separate groups of inventions which constitute the subject-matter of the following groups of claims:

i) claims 1-15, 75-88, 146 and 179, for systems and methods for manufacturing flat panel displays by using manufacturing devices located in a first controlled environment and inspection devices located within a second controlled environment included in said manufacturing devices;

ii) claims 16-73, 89-113,115-131 and 147-178, for systems and methods for inspecting objects, and methods for coating the surface of an article, by using two illumination configurations and non-scanning sensors for optical inspection;

iii) claims 74 and 114, for an apparatus and a method for inspecting an article in a clean room, by using at least one non-scanning sensor and a controller for remotely controlling a positioning stage and array of illuminators;

iv) claims 132-145, for an apparatus and a method for automatic optical inspection of generally flat articles, by using a light beam generator and a sensor positioned with respect to specific orders of diffracted light reflected from said inspected article.

Said groups of claims are not so linked as to form a single general inventive concept (in the sense of Rule 13.2 PCT), and the requirement of unity of invention of Rule 13.1 PCT is therefore not met.

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents, previously cited in the International Search Report:

D1: US-A-5 344 365 (SCOTT) 6 September 1994
D2: US-A-5 715 052 (FUJINO) 3 February 1998
D3: EP-A-0 672 933 (ORBOTECH) 20 September 1995
& US-A-5 771 068 *cited in the application*
D4: WO 98 20327 A (KLA-TENCOR) 14 May 1998

2. Document D1, considered as the closest prior art with respect to the subject-matter of claim 1 of the present application, discloses (cf. column 1, lines 12-22, column 3, line 24 - column 4, line 10, column 8, line 48 - column 9, line 13, column 13, line 67 - column 14, line 11 and figure 6):

a system for manufacture of flat panel displays, comprising a plurality of manufacturing devices located in a first controlled environment, said plurality of manufacturing devices each including an enclosure defining a second controlled environment different from said first controlled environment.

The subject-matter of claim 1 differs from the system disclosed in document D1 in that there is provided, within said enclosures defining said second controlled environments, a plurality of optical inspection devices for inspecting the flat panel display substrates at various stages of the production thereof.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as providing a system of the general type disclosed in document D1 which would enable an increased yield of reliable flat panel displays.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.
Document D2 discloses (cf. column 6, lines 25-64, column 7, lines 52-59, column 11, line 2 - column 13, line 64 and figures 1, 4) a system for manufacturing flat panel displays (liquid crystal displays), wherein the devices performing different manufacturing steps are accompanied by optical inspection devices for inspecting the flat panel display substrates at various stages of the production thereof. The system of document D2 is specifically characterized (see in particular column 7, lines 52-59)

as improving the yield and reliability of the flat panel displays produced thereby, so that the skilled person would regard it as a normal option to include the teaching of document D2 in the system described in document D1 in order to solve the problem posed. With respect to the feature of locating the optical inspection devices in the enclosures corresponding to the manufacturing devices, this merely represents an obvious constructional measure which comes within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen.

3. The subject-matter of the independent claim 2 is anticipated by document D1, which discloses (cf. column 1, lines 12-22, column 3, line 24 - column 4, line 10, column 8, line 48 - column 9, line 13, column 13, line 67 - column 14, line 11 and figure 6):

a system for manufacture of flat panel displays comprising a first controlled environment which is an airborne particle controlled environment having a first level of controlled airborne particulate contamination, and a second controlled environment which is an airborne particle controlled environment having a second level of controlled airborne particulate contamination that is less than the first level of controlled airborne particulate contamination.

Hence, claim 2 (insofar as it can be understood in view of the clarity objections under section VIII below) appears not to be novel (Article 33(2) PCT) in view of the disclosure of document D1.

4. Although the respective subject-matter of claims 3-15 is not disclosed as such in the available prior art, and is therefore novel (Article 33(2) PCT), dependent claims 3-15 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being that said dependent claims seem to relate to mere design modifications, consequential features of the basic systems of claims 1 and 2, respectively, or conventional features (see e.g. documents D1-D4), and thus do not add anything inventive to the independent apparatus claims 1 and 2.

5. In view of the fact that the features of the independent method claims 75 and 146 correspond to those of the independent apparatus claims 1 and 2, the reasoning presented under paragraphs 2 and 3 above is also applicable to said claims 75 and

146. The subject-matter of claim 75 is therefore novel (Article 33(2) PCT), but it is not considered to involve an inventive step (Article 33(3) PCT), and the subject-matter of claim 146 is anticipated by document D1.

6. Claims 76-88 and 179 are dependent on claim 75 and as such also meet the requirements of the PCT with respect to novelty.

However, the dependent method claims 76-88 (strictly corresponding to the apparatus claims 3-15) and 179 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, the reasons being that said dependent claims seem to relate to mere design modifications, consequential features of the basic method of claim 75 or conventional features (see e.g. documents D1-D4), and thus do not add anything inventive to the independent method claim 75.

7. Claims 1-15, 75-88, 146 and 179 appear to satisfy the criterion of industrial applicability (Article 33(4) PCT), since the claimed invention can be used for manufacturing flat panel displays.

Re Item VII

Certain defects in the international application

1. The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, with those features known in combination from the prior art (see document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

3. The syntax of the phrases used on page 2, line 31 - page 3, line 5 of the description leaves the reader in doubt as to the meaning of the technical features to which said phrases refer, thereby rendering unclear the disclosure of the invention (Rule 5.1(a)(iii) PCT).

4. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

Re Item VIII

Certain observations on the international application

1. The various definitions of the invention given in the independent apparatus claims 1 and 2, and in the independent method claims 75 and 146 are such that the claims as a whole are not clear and concise, contrary to the provisions of Article 6 PCT and therefore make it difficult to determine the matter for which protection is sought, placing an undue burden on others seeking to establish the extent of the protection.

2. The respective wordings of claims 2 ("A system...comprising wherein...") and 8 ("...one non-scanning sensor comprises a plurality of non-scanning sensors...") are unclear and leave the reader in doubt as to the meaning of the technical features to which they refer, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT).

3. Claim 2 is rendered unclear (Article 6 PCT) by the references to "**the** first controlled environment" and to "the second controlled environment", since said independent claim 2 does not comprise any previous mention of such first and second controlled environments.

 Claim 179 is rendered unclear by the reference to "**said** optical array", since there is no mention of such an optical array in claims 75-79 on which claim 179 is dependent.

4. The method implied by the combination of claims 80 and 81, comprising the use of at least one sensor viewing the entire surface of the substrate (according to claim 80) **and** of a plurality of sensors viewing each a portion of the substrate (according to claim 81), is not referred to in the description. Claim 81 is therefore not supported by the description as required by Article 6 PCT.

 It should be noted that the embodiment of the invention described on page 29, lines

24-26 and on page 37, lines 19-26 concerns the use of an array of sensors viewing each a portion of the substrate as an alternative to the use of one sensor viewing the entire surface of the substrate.

5. The combinations of claims 8,9, 11 and 81,82, 84, respectively, are rendered unclear (Article 6 PCT) since it is not clear which one, from the mentioned plurality of non-scanning sensors, is the non-scanning sensor referred to.

6. The following feature in the apparatus claim 11 relates to a method of using the apparatus rather than clearly defining the apparatus in terms of its technical features:

 "...in which the non-scanning sensor acquires..."

 The intended limitations are therefore not clear from this claim, contrary to the requirements of Article 6 PCT.

7. The term "substantially" used in claims 7, 8, 10, 80, 81 and 83 has no well-recognised meaning and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject-matter of said claims unclear (Article 6 PCT, PCT Guidelines III-4.5a).

8. The respective subject-matter of claims 13 and 86 is defined by means of a negative feature, namely that the image analyser is operative, and the analysis step is performed, **without** comparison to an external reference. However, such a "disclaimer" may only be used when the claim's subject-matter cannot be defined more clearly and concisely by means of positive features (PCT Guidelines, III-4.12).

9. The claims 1-15, 75-88, 146, 179 are rendered unclear (Article 6 PCT) by the inconsistency between their respective subject-matter, i.e. a system and a method for **manufacture** of flat panel displays, and the disclosure of the invention (summary of invention) on page 4, lines 2-4, 7-12, page 5, lines 4-11 and page 6, lines 24-27, which refers to systems and methods for **inspection** of flat panel displays.